brown outer edges: hind wing and its cilia pure white. Head and body concolorous with the wings, abdomen with brown segmental bands; palpi orange, the terminal joints white. Underside: body and wings uniform silvery white.

Expanse of wings, ♀, $1\frac{1}{10}$ inch.

Hab. Queensland.

XXXII.—*The Status of* Parabates, Foerster, *and* Parabatus, Thomson [*Hymenoptera*, Ichneumonidæ]. By J. Chester Bradley, Ph.D., Cornell University, Ithaca, N.Y.

There is a confusion concerning the status of the so-called genus *Parabates*. It was described by Foerster (1868) without mention of included species, being separated from *Paniscus* by reason of the front wing lacking an areolet. The only known Palearctic species in which this is normally the case is *nigricarpus* (in *millieratæ*, Kriechbaumer, it is in some individuals lacking). Specimens of *virgatus* without areola are not known to occur.

The International Commission on Zoological Nomenclature in its 46th published opinion has ruled on such cases that the genera are valid. "If (as in *Aclastus*, Foerster, 1868) it is not evident from the original publication of the genus, how many or what species are involved, the genus contains all of the species of the world which would come under the generic description as originally published, and the first species published in connection with the genus (as *Aclastus rufipes*, Ashmead, 1902) becomes *ipso facto* the type."

The species *rufipes* referred to as an example, having been described subsequent to the publication of *Aclastus*, Foerster, it is evident that the opinion means to include in the genus all species in the world which fit the original description, whether already described at that time or described subsequently.

The opinion states that the first species published in connection with the genus becomes *ipso facto* type, and we accordingly may infer that in the case of several species being simultaneously included in the first mention of species in the genus, without one of them being designated as type,

the ordinary rules of type-fixation must be applied. The opinion, however, leaves a little uncertainty, whether in such cases *any* of those species first included may be chosen as type, or whether it must be one that agrees with the original generic definition. In view, however, of the fact that the opinion says "the genus contains all of the species of the world which would come under the generic description as originally published," it would seem that the selection must be restricted to such of the first-published species as do come under the generic description as originally published, and that if none of them come under it they are none of them available. Mr. Viereck, in fixing the types of the genera of Ichneumonoidea, has evidently thought otherwise.

Thomson (1888, Opusc. Ent. xii. 1194) established a genus *Parabatus*, without any reference to Foerster's name *Parabates*. In it he recognised two sections and four species as follows: *Section A*, without areolet [=*Parabates* in sense of Foerster's description], *nigricarpus*, sp. n.; *Section B*, *latungula*, sp. n., *virgatus*, Grav. (*i.e.* Fourcroy), and *cristatus*, sp. n.

The first mention of species, in connection with Foerster's original name *Parabates*, seems to have been in Dalle Torre's 'Catalogus Hymenopterorum,' iii. p. 75 (1903). The four species included by Thomson under *Parabatus* and four others are included under the generic name *Parabates*.

According to the code (Article 36, Recommendations) *Parabatus*, Thomson, is potentially at least a distinct genus from *Parabates*, Foerster, whether they are synonyms depending entirely upon the fixation of the type of each and upon whether the types are congeneric. Viereck (1914) has fixed, correctly, the type of *Parabatus*, Thomson, as *virgatus* (*Ichneumon virgatus*, Fourcroy). Mr. Viereck (1914) also designates *virgatus*, Fourcroy, as the type of *Parabates*, Foerster, which would make *Parabates* and *Parabatus* identical, as is desirable. However, it does not seem that this is permissible. *Ichneumon virgatus*, Fourcroy, does not fall under the generic definition of Foerster's *Parabates* (in as much as it always possesses an areolet, as I have pointed out). It would, therefore, seem that it must be excluded from consideration as type of the genus. The only known Palearctic * species that normally † agrees with Foerster's

* *Opheltoideus johnsoni*, Ashmead, 1900, a Nearctic species, may be congeneric with *Parabatus nigricarpus*, Thomson, and like it lacks an

generic definition is *nigricarpus*, Thomson, which alone forms Section A of Thomson's *Parabatus*—a section, as I have already stated, distinguished by the absence of the areolet. It would therefore seem, and I hereby so designate it, that the type of *Parabates*, Foerster, must be *Parabatus nigricarpus*, Thomson, and that *Parabates*, Foerster, must be equivalent to Section A of Thomson's genus, and *Parabatus* to Section B.

Szepligeti (1911, 'Genera Insectorum,' fasc. 114) restricts *Parabates*, Foerster, to *nigricarpus*, Thomson, synonymizing Section A of *Parabates*, Thomson, with *Parabates*, Foerster, and Section B with *Paniscus*.

Schmiedeknecht (1910, 'Opuscula ichneumonologica,' iv. 1847), separates *Parabatus*, Thomson, from *Paniscus*, Gravenhorst, as follows :—

"Nervulus interstitial, sehr selten etwas vor der Gabel. Scheitel und Wagen hinten nicht durch eine Leiste abgegrenzt. Areola zuweilen fehlend.—*Parabatus*, Foerster.

"Nervulus weit hinter der Gabel. Hinterhaupt durch eine Leiste abgegrenzt. Areola stets vorhanden.—*Paniscus*, Grav."

He further remarks: "Es könte wie bei so vielen Gattungen die Frage auf geworfen werden, ob das nicht immer deutliche Vorhandensein oder Fehlen der Hinterhauptsleiste und die etwas Schwanken de Stellung des Nervulus genügt, um die beiden Gattungen *Parabatus* und *Paniscus* von einander zu trennen. Wem diese Unterscheidungsmerkmale nicht genügen, den mag die *Parabatus*-Arten mit zu *Paniscus* rechnen, aber er mag nicht behaupten, dass *Parabatus* und zahlreiche andere Gattungen nicht aufrecht erhalten werden können."

Schmiedeknecht (*l. c.*, and earlier, 1904, 'Die Hymenopteren Mitteleuropas,' p. 605) states that *Parabates*, Foerster, has nothing to do with *Parabatus*, Thomson, and that what Foerster meant to include under *Parabates* is difficult to say. I do not believe that that is the case. *Parabatus nigricarpus*, Thomson, agrees entirely with Foerster's definition of *Parabates*, the only possible point of question being found in the following statement : "Cubitalquerader stark gebogen, mit

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areolet, but was not included by either Thomson or Dalle Torre in *Parabatus* or *Parabates*.

† As previously indicated, aberrant individuals of *millieratæ*, Kriechbaumer, also lack the areolet.

der Cubitalader nicht in einen Spitzen winkel zusammentreffend, letztre daher nicht aus der Spitze der Diskokubitalzelle hervorgehend." A comparison of the wing of *nigricarpus* with an *Eremotylus* (with which genus and *Allosamptus* Foerster is comparing *Parabates*) makes his meaning obvious.

Ashmead (1900, 'Classification of the Ichneumon Flies,' Proc. U.S. Nat. Mus. xxiii. 96) recognising minutiæ of structure as of generic rank, erects a new genus *Opheltoideus* for the species without an areolet (and which would therefore include *nigricarpus* and be a synonym of *Parabates*, Foerster, as here defined) and separates *Parabates*, Foerster, which he states is equivalent to *Parabatus*, Thomson, from *Paniscus*, primarily on the basis that the basal and submedian veins are interstitial in the former, or very nearly, and the submedian cell longer than the median in the latter. In *Parabates* he further says the discocubital vein is not broken by a stump of a vein, while in *Paniscus* it is usually but not always so.

Morley (1913, 'Revision of the Ichneumonidæ,' ii. 129) writes: "*Parabatus*, Thomson. Known from *Paniscus* only by the continuous basal nervulus through the median nervure, thus forming both the upper and lower basal nervures of a single line; this I do not always find associated with an occipital costa, and I have been obliged consequently to place species with this capital structure occasionally in the genus *Paniscus*. Thomson originally placed four Swedish species in the present genus and others were subsequently added; but Szepligeti, for some occult reason, has restricted Thomson's genus to a single species, the first here placed by its author, which differs from the other three in little more than the aborted areolet, and further he has synonymized—entirely arbitrarily, I think—Ashmead's Nearctic genus *Opheltoideus* with its single and still MS. species, *O. johnsoni*. I have already pointed out (Revis. Ichn. Brit. Mus. i. 60) that the latter almost certainly appertains to the Anomalides."

Szepligeti's course in restricting *Parabates* to the one species *nigricarpus* was not occult, but perfectly logical, since it is the only one falling under Foerster's original definition. Nor was it arbitrary to assign *Opheltoideus*, Ashmead, as a synonym, since the published characters of that genus leave no other course possible. On the other hand, Mr. Morley's conclusion that *Opheltoideus* is an anomaline genus is open to grave doubt. It was arrived at

solely on the basis of the determination by Herr Sigmund Brauns of a North American specimen sent him by Mr. Morley as "*Opheltoideus* sp.?" But there is not the slightest evidence that the determination was correct, or that Herr Brauns had any more knowledge of what *Opheltoideus* is than has Mr. Morley or anyone else who has not seen Ashmead's specimen of *johnsoni*.

Mr. Morley's key to the genera (1913, *l. c.* p. 101) makes no provision at all for *Parabates,* Foerster, s. s. (i. e. *nigricarpus,* Thomson, a species without an areolet), as it neither agrees with his *Paniscus* and *Parabatus,* both of which are stated to have an areolet, nor with *Parca* which is the only provision made for species with the areolet absent, but which differs in other respects.

Mr. Morley does not make it clear what species of *Paniscus* lack the occipital carinæ. It is weak in even the type-species, *testaceus*, and readily may not be associated with the relative length of the median and submedian cells, as he suggests, nor with any other structural character.

To sum up, there seem to be a group of species which have the nervulus interstitial (m—cu and $M_4 + Cu_1$ opposite) and a group which do not, but of the former two or three species have the nervulus sometimes a little beyond the apex of the cell, and one species (*franki*, known from a single German female, which may be abnormal) has it widely before the apex of the median cell. On the other hand, specimens of *testaceus*, the type-species of *Paniscus,* determined for me by Professor Schmiedeknecht, show a varying distance between the apex of the median cell and the nervulus, in one case the distance being quite insignificant. Secondly, *nigricarpus*, *millieratæ*, *pallescens*, *tarsatus, gansuanus, virgatus*, *latungula*, *cristatus*, and *franki* are stated by Schmiedeknecht (in giving his generic description) to lack an occipital carina, while he states that all of the species of *Paniscus* possess such a carina. So far as I have observed, this distinction holds, and probably is the best primary character available for group-definition. Morley, treating of additional species from other parts of the world, finds species lacking the carina which, on the basis of the venational character just discussed, he treats as *Paniscus*. Finally, *nigricarpus* and *johnsoni** lack an areolet normally, but at least also *millieratæ* in aberrant individuals.

* In the case of *johnsoni* probably not enough individuals are known to be sure what is normal.

Since there seems, therefore, to be no strongly distinctive structural character between these groups, and especially since there seems to be *no association of structural characters*, their logical treatment would seem to be as at most subgenera of a single genus, *Paniscus*.

The arrangement and synonymy will therefore be:—

Paniscus, Gravenhorst.

Subgenus Paniscus.

Type.—[*Ichneumon luteus*, Ross] = *Paniscus testaceus*, Gravenhorst, the only originally included species.

Distinguishing characters: Head with an occipital carina; nervulus (M_4+Cu_1) apicad of the apex of the median cell; areolet present and complete.

Subgenus Parabatus, Thomson.

Type.—*Ichneumon virgatus*, Fourcroy, by designation of Viereck, 1914.

Distinguishing characters: Head without an occipital carina; nervulus interstitial, but in some species slightly apicad of the apex of the median cell, in another (known from a unique and possibly aberrant Palearctic female) basad thereof, and in some species not interstitial (according to Morley, who would on that account put them in *Paniscus*); areolet present in normal individuals, but lacking in aberrant individuals of at least one species.

Subgenus Parabates, Foerster.

Type.—*Parabatus nigricarpus*, Thomson, by present designation, and by virtue of the fact that it is the only one of the species first included in *Parabates*, which comes under the original generic definition. Therefore, not *Ichneumon virgatus*, Fourcroy, which was cited as type by Viereck.

Synonym.—*Opheltoideus*, Ashmead, of which the type is *johnsoni*, Ashmead. Synonym by reason of the types being congeneric so far as published descriptions indicate.

Distinguishing characters: Head without an occipital carina; nervulus interstitial; areolet absent.